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A SYSTEM
OF
HOUSE DRAINAGE
BY
OPEN INSTEAD OF CLOSED SOIL PIPES.

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R. NORMAN SHAW, R.A., *Architect.*

R26067

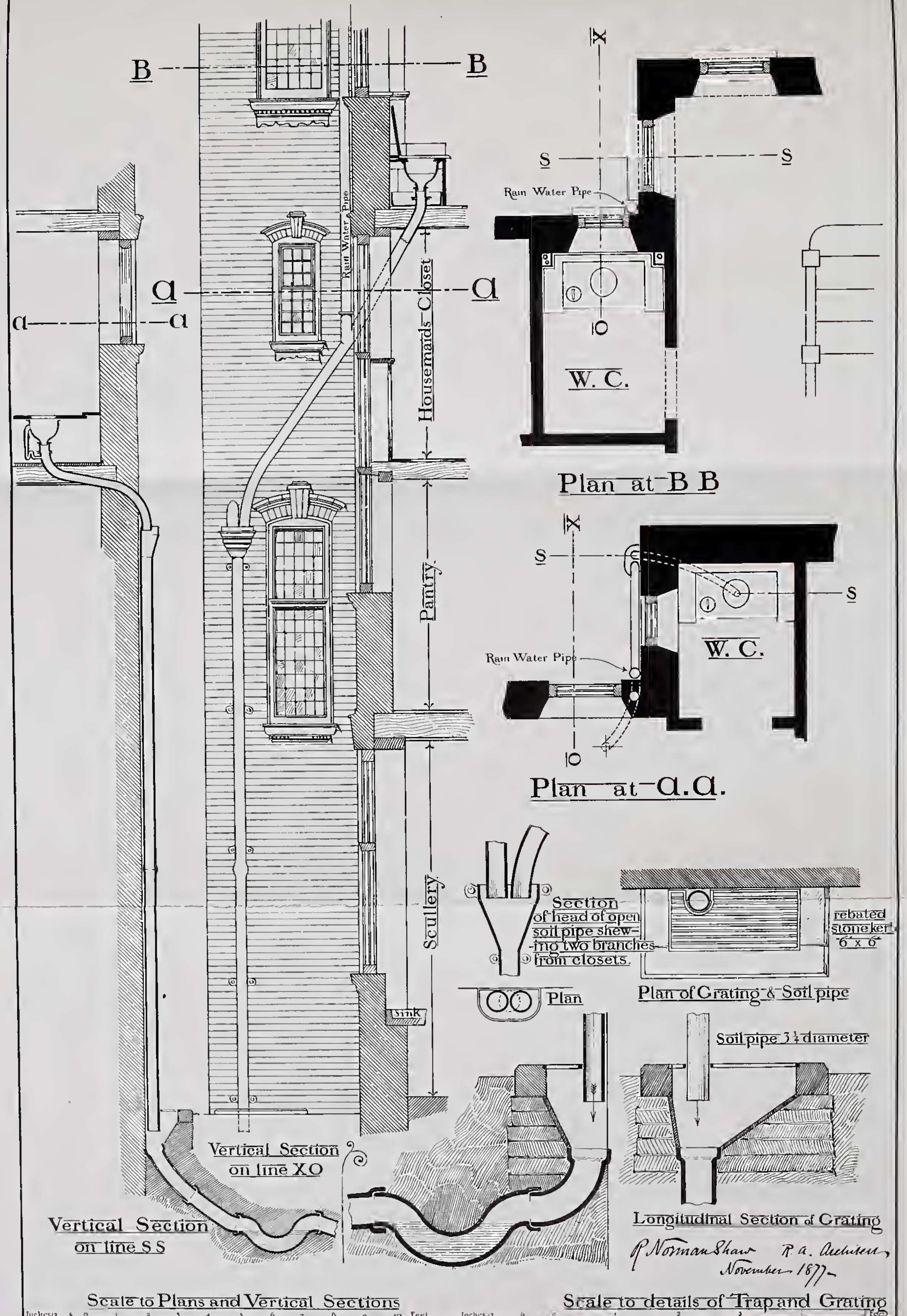

B — B
Rain Water Pipe
a — a
a — a
Housemaids Closet
Pantry
Scullery
Sink
X
S — S
Rain Water Pipe
O
W. C.
Plan at B B
X
S — S
Rain Water Pipe
W. C.
O
Plan at a.a.
Section of head of open soil pipe shewing two branches from closets.
Plan
rebated stoneker 6 x 6
Plan of Grating & Soil pipe
Soil pipe 3½ diameter
Longitudinal Section of Grating
Vertical Section on line XO
Vertical Section on line SS
R Norman Shaw R.A. Architect,
November 1877.
Scale to Plans and Vertical Sections
Inches 12 6 0 1 2 3 4 5 6 7 8 9 10 Feet
Scale to details of Trap and Grating
Inches 12 0 1 2 3 Feet

Diagram shewing plan of house drainage by open instead of closed soil pipes.

Photo Lithographed & Printed by James Akerman, 6, Queen Square, W.C.

ON HOUSE DRAINAGE BY OPEN INSTEAD OF CLOSED SOIL PIPES.

It is hardly necessary to enter on a lengthy essay to urge the desirability of having our houses efficiently drained, as nearly all people now-a-days are fully alive to the necessity; and the numerous inventions which are continually being brought out, prove that a very wide spread feeling exists, that our present arrangements are far from satisfactory, and are capable of much improvement. One of the drawbacks of all these new inventions is that they complicate more or less the plan generally in use; either the mechanism is more elaborate, and consequently more liable to get out of order, or they require greater attention, as in the case of all those in which the improvement consists in the mechanical application of any deodorising or disinfecting chemical; with any arrangement of this latter kind, when the novelty is worn off, it ceases to be attended to regularly, and so becomes practically useless.

My object in writing these notes is to explain a plan I have adopted, and which has been found to be perfectly efficient; it is simpler and less costly than the plan generally in use; and as it is absolutely impossible for sewer gas to enter a house where it is used, it follows that the occupants are free from all danger from this source, a point that cannot be too strongly dwelt upon, when it is remembered that several of our most serious outbreaks of epidemic fever have been directly traced to a defective state of house drainage, and also that medical men tell us that much illness, and even mortality, exists amongst children and people of delicate constitution, arising from the same cause; in fact no one is safe: it is a danger ever present, and is seldom discovered or even suspected till too late.

The modern plan, with hardly an exception, is to connect our closets with the underground drains by closed soil pipes, trapped at one or more points. The plan I have adopted is to connect the closets with the drains by open soil pipes, and to leave out all traps with the exception of one. Thus no lead D traps are required; no so-called ventilating pipes; no expensive junctions to make (always a source of weakness and danger): the whole arrangement becomes simplified at once; and as a natural result is not so liable to get out of order. In the ordinary plan a quantity of foul sewer gas is constantly being generated in the long length of closed soil pipe. In my plan as the soil pipe is open no gas can be generated or remain in it.

The simplest plan is to make a short arm of lead pipe attached direct to the lower portion of the valve box; just where the D trap generally comes, and led through the exterior wall of house in an easy bend, discharging into a funnel shaped head of lead, forming the top of the soil pipe. The soil pipe is three inches in diameter, but might with advantage be less, open at the top and bottom, the lower end terminating about three or four inches below the level of the ground, and directly over a carefully constructed syphon trap of glazed earthenware, but leaving an open space of six or eight inches between the foot of the soil pipe and the top of the syphon.

The action is extremely simple—when the handle of the closet is pulled up, the contents of the pan rush, *unimpeded by any trap*, straight through the short arm first mentioned, fall directly down the vertical *open* soil pipe, and sweep through the trap with considerable force, into the underground drain; there is no place for any matter to lodge. In the ordinary arrangement, the contents of the pan fall into the D trap from a height of only a few inches; this trap has a constant tendency to choke; and it is no exaggeration to say that it is never clean. To ventilate this trap and soil pipe, it has become a custom to put in what are called "ventilating pipes," carried to the ridge of the house or to the top of a chimney.

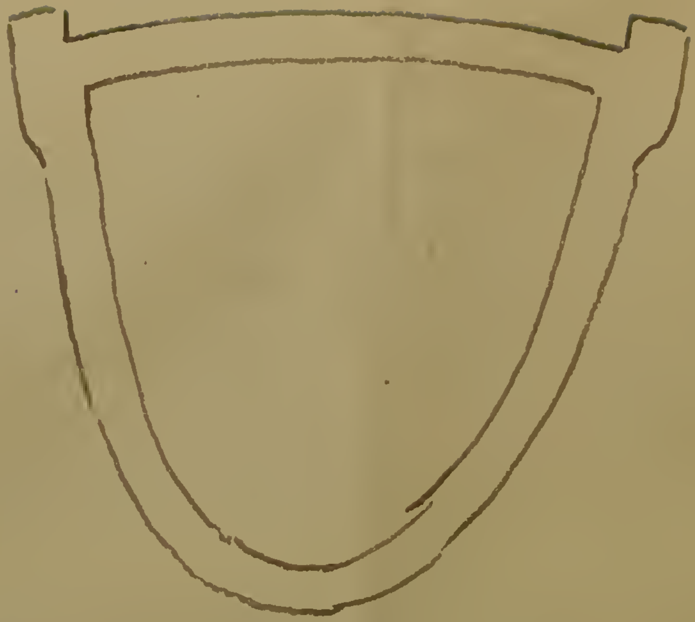
They certainly serve to take off the extreme pressure of gas constantly accumulating in the upper part of the soil pipe, and some of which is generally liberated whenever the handle is pulled up; but that is all they do, in no way can they be said to ventilate the soil pipe; any more than a room could be said to be ventilated if it had a two inch pipe inserted in the ceiling; they are better than nothing, and that is all that can be said for them; but in this arrangement no ventilating pipes are required, as the air gets freely to every part.

When first I adopted this arrangement I expected occasionally to find impure matters at the foot of the soil pipe, and had not fully realised the very cleansing effect of the fall of water. I also thought it probable that this part might become coated over with a foul deposit, which might occasionally require to be removed, but after an experience of two years, I have never once seen anything objectionable, nor is there the slightest deposit on the upper part of trap. This trap has never been cleaned out, nor touched in any way, nor have any disinfectants ever been poured down any of the closets. Then I was warned by sanitary experts and plumbers alike, that there would be sure to be a smell; first, at the grating at level of ground; secondly, at the top of the open soil pipe; and thirdly (owing to the absence of a trap), in the closets. No one has ever yet been able to detect the slightest smell at the grating; nor at the top of the soil pipe, and the closets are exceptionally sweet. They are fitted with "water waste preventors;" so that when the handle is held up till the water has ceased to flow, the air can generally be felt to blow up the pipe, but it never brings with it any smell of an offensive nature.

The accompanying diagram will shew the general arrangement clearly enough for all practical purposes. It will be noticed that there are two closets discharging into one soil pipe, one of these closets has a short arm about 4 feet long, the arrangement that would be most usually required, but in order further to test the system, I made the other closet with a long arm, upwards of 12 feet from the pan to the open mouth of pipe. This latter is just as satisfactory as that with the shorter arm, being absolutely free from smell. I may add that I shall be glad to have the opinions of all interested in this subject whether friendly or hostile. I have no patent to protect, nor any interest of any kind at stake. My only desire is to secure the simplest and most efficient means of effecting that which is admitted to be a difficulty and a source of danger.

R. NORMAN SHAW.

HAMPSTEAD,
December, 1877.



Norman Shaw's patent drain pipe
are made by
Mr. J. C. Edwards
Ruabon